Amendments to the Specification:

Please replace the title of the application on page 1, lines 1 and 2, with the following amended title:

METHOD FOR IMPLEMENTING DISTRIBUTION OF LINK STATE INFORMATION IN AN OPTICAL NETWORK ~~A METHOD FOR REALIZING LINK STATE INFORMATION DIFFUSION IN OPTICAL NETWORK~~

Please replace paragraphs [0002], [0003], [0004], [0005], and [0006] with the following amended paragraphs:

[0002] Open Shortest Path First (OSPF) protocol is a routing protocol that is commonly used in intelligent optical networks. Each router which runs OSPF protocol ~~can interact~~ distributes its local link state information throughout the Autonoumous System by flooding, ultimately every participating OSPF router can obtain all the link state information of the whole Autonomous System's topology, and all the OSPF routers ~~in the whole Autonomous System~~ have the same link state database ~~information~~.

[0003] The ~~interaction~~ flooding of OSPF link information is implemented via various Link State Advertisements (LSAs). The standard OSPF LSAs are: Router-LSAs, Network-LSAs, Area Border Router-Summary-LSAs, Autonomous System Boundary Router-Summary-LSAs, AS-external-LSAs, etc. In order to meet the requirements of Traffic Engineering (TE), OSPF extension protocol is used to extend the standard LSA, i.e., by using Type 10 Opaque LSA for releasing related link information, which is called Traffic Engineering Link State Advertisement (TE LSA).

[0004] The TE LSA, which is an opaque LSA, has t~~T~~wo kinds of top-level TLVs (Type/Length/-Value) ~~are defined in TE LSA~~: Router Address TLV and Link TLV. Wherein, the Link TLV mainly describes the link properties of Traffic Engineering (TE) and defines standard sub-TLVs numbered 1 to 16, i.e., secondary TLVs, which include ~~TE link ID~~Link Type, ~~local interface~~Link ID, Local interface IP address~~remote interface~~, Unreserved bandwidth, Link Protection Type, Shared Risk Link Group, Interface Switching Capability Descriptor~~bandwidth~~

~~resource, shared risk link group, link protection type~~, etc; wherein, the link protection type is No.14 sub-TLV.

[0005] According to IETF definition, the protection type of the links in an automatic switching optical network includes Extra Traffic, Unprotected, Shared, Dedicated 1:1, Dedicated 1+1, Enhanced, etc. When an optical fiber is configured with Multiplex Section Protection (MSP), protection types of channels in the fiber~~for the multiplex sections~~ can be categorized into three types: ~~Protected~~Enhanced, Unprotected ~~Protection~~ and Extra Traffic~~non-protection without contention~~; that is, protection types of different channels in an optical fiber can be different from each other, so it is inappropriate for a fiber link to define only one protection type.

[0006] Presently, when an optical interface is configured with MSP~~multiplex sections~~, the links for the bidirectional shared multiplex section can be divided into three TE links of different attributes: ~~protected~~ enhanced TE link, extra traffic TE link and unprotected TE link. In this way, the protection types of all the bandwidth resource for each TE link are identical. The three TE links generate LSAs to be flooded respectively.

Please replace paragraph [0008] with the following amended paragraph:

[0008] (1) when there is traffic on a ~~corresponding~~ link, a multiplex section can not be dynamically configured, modified or deleted in this link, because configuring, modifying or deleting the multiplex section can result in regeneration of the TE link index for the optical interface. For example, if no multiplex section is configured initially, there exists an unprotected TE link in the optical interface; when multiplex sections are configured, the original TE link is deleted and then three new TE links are generated in accordance with the new configuration; in this way, meaning of the link TE index for the current traffic stored in signaling has changed, which may likely cause that the index does not relate to the original TE link.

Please delete paragraphs [0010] and [0011]:

~~[0010] An object of the present invention aims to provide a method for implementing distribution of link state information in an optimal network, so as to overcome the disadvantage~~

~~of much flooded information while distributing the link state information, and to facilitate dynamically adding, modifying and deleting configuration information when there exists traffic.~~

~~[1100] The object of the present invention is achieved with the following technical solution:~~

Please replace paragraphs [0012], [0013], [0014], [0015], and [0016] with the following amended paragraphs:

[1112] ~~An object of t~~The present invention aims to provide a method for implementing distribution of link state information in an optical network including the steps of:

[1113] ~~A.~~ determining information of each link protection attribute section included in a Traffic Engineering (TE) link;

[1114] ~~B.~~ carrying the information of each link protection attribute section included in the TE link in a customized Type Length Value (TLV), respectively;

[1115] ~~C.~~ distributing the TLV of Traffic Engineering link in the optical network via Traffic Engineering Link State Advertisement (TE LSA).

[1116] wherein, the step ~~A~~ of determining information of each link protection attribute section included in a TE link includes the steps of:

Please replace paragraphs [0020] and [0021] with the following amended paragraphs:

[0020] The step ~~B~~ of carrying the information of each link protection attribute section included in the TE link in a customized TLV respectively includes the step of:

[0021] carrying the information of each link protection attribute section on the TE link in a field of link protection attribute section structure of the customized TLV.

Please replace paragraph [0038] with the following amended paragraphs:

[0038] In the embodiment of the present invention, all link state information on TE links is placed in TE link TLVs to be flooded, wherein the information such as link type, ~~TE~~ link ID, local interface IP address, remote interface IP address, Unreserved bandwidth ~~resource~~, Shared Risk Link Group and Interface Switching Capability Descriptor (link protection type is not

included), etc, is located in a standard defined secondary TLV, and private information is placed in a customized secondary TLV.

Please replace paragraph [0047] with the following amended paragraph:

[0047] In the protection attribute section structure, the representation of the bandwidth resource ~~occupied by the section~~ includes two fields: the minimum bandwidth supported by the section (i.e., the minimum bandwidth granularity) and the bandwidth resource occupied by the section.